Rhodora

JOURNAL OF

THE NEW ENGLAND BOTANICAL CLUB

Vol. 36. December, 1934. No. 432.

A NEW CARDAMINE FROM THE UINTA MOUNTAINS, UTAH[1]

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(Plate 322)

THE Uinta Mountains of northeastern Utah, a range 125 miles in length which is isolated from other ranges and possesses a wide variety of soils and habitats within an altitudinal range of 7000 feet (from approximately 6000 to 13,500 feet), might well be expected to embrace more endemic plants than the few at present known to occur there. The Mountains are still largely inaccessible except toward their eastern and western extremities. That the range is as yet very imperfectly known botanically is apparent from Goodman's recent report[2] of the discovery of the Pacific species, *Arenaria cephaloidea* Rydb., *Lesquerella Kingii* Wats. and *Dodecatheon tetrandrum* Suksdorf, and the northern *Mertensia incongruens* McBr. & Payson, among collections from the Bear River Valley,—very appreciable range extensions to the east and south for these species. That some eastern species, too, reach their apparent southwestern limt in the Uintas became evident when the writer collected there, during the summer of 1933, such species new to the State as *Carex misandra* R. Br. (Mt. Emmons, Duchesne Co., alt. 11350 ft., no. 5027), *Carex rupestris* All. (Mt. Emmons, no. 4999), *Carex obtusata* Liljebl. (Carter Creek Canyon, Daggett Co., alt. 8300 ft., no. 4788),

[1] Paper from the Department of Botany and Herbarium of the University of Michigan no. 461. Published with aid to RHODORA from the National Academy of Sciences.

[2] Goodman, G. J. Notes on the Distribution of Some Rocky Mountain Plants. Ann. Mo. Bot. Gard. **18**: 283–286. 1931.

Carex brunnescens (Pers.) Poir. (Chain Lakes, Duchesne Co., alt. 10800 ft., nos. 5183, 5224) and *Juncus alpinus* Vill. (Sheep Creek Canyon, Daggett Co., alt. 6000 ft., no. 4734). The endemic *Penstemon uintahensis* Pennell, a species discovered by Gooding at Dyer Mine in 1902[1] and, as far as can be determined, not since collected, also was found in abundance on the southern slope of Mt. Emmons (nos. 5005 and 5149) growing with *Kobresia Bellardi* (All.) Degland, an elusive little sedge (due to a marked similarity of aspect to its frequent associate *Carex elynoides* Holm) which seems not to have been reported for Utah.

An undescribed Cardamine, unrelated to the other species of the West, was found near the base of Mt. Elizabeth on the north slope of the range. Since it is apparently endemic it may appropriately be known as:

CARDAMINE **uintahensis**, sp. nov. (TAB. 322). Planta perennis, humilis. Rhizoma longum. Caulis humilis, 18–20 cm. altus, strictus, simplex, glaber vel minute pilosus. Folia simplicia, cordata, obtusa, textura crassa firmaque, ea rhizomatis petiolis modice leviterve pilosis, ca. 55 (33–64) mm. longis et laminis glabris late orbiculatis vel reniformibus ca. 23 (14–29) mm. longis, 25 (17–34) mm. latis, levissime sinuatis vel subintegris, ea caulis 6–10, saepe valde purpureo-tinctis, inferiora laminis suborbiculatis vel ovatis leviter inaequaliterque sinuatis et petiolis glabris laminis aequilongis, superiora valde reducta, laminis deltoido-ovatis et valdius sinuatis (saepe fere lobatis), quam petioli longioribus. Racemus 11–16-florus; flores adhuc ignoti. Racemus fructifer ca. 38 (26–48) mm. longus. Siliquae in pedicellis glabris 4–9.5 mm. longis erectae, glabrae, 14.5–20 mm. longae, 1.7–2 mm. latae, lineari-oblanceolatae, abrupte acutae, rostro longo (1.5–2.5 mm.) apice stigmate insigni. Semina fere duplo longiora quam lata (2 x 1.2 mm.).

Perennial with horizontal rootstock; stem simple, strict, 18–20 cm. high, glabrous or very sparingly pilose; leaves all simple, cordate, obtuse, thickish and firm in texture, the basal with moderately pilose petioles ca. 55 (33–64) mm. long, and broadly orbicular to reniform glabrous blades ca. 23 (14–29) mm. long, 25 (17–34) mm. wide, very shallowly sinuate to subentire; cauline leaves 6–10, often strongly purple-tinged, the lower with suborbicular to ovate blades shallowly and irregularly sinuate, and glabrous petioles equalling the blades or nearly so, the upper markedly reduced, their blades deltoid-ovate and more deeply sinuate (often almost lobed), longer than their petioles; raceme 11–16-flowered; flowers unknown; fruiting raceme ca. 38 (26–48) mm. long; siliques 14.5–20 mm. long, 1.7–2

[1] Pennell, F. W. Scrophulariaceae of the Central Rocky Mountain States. Contr. U. S. Nat. Herb. **20**: 350–351. 1920.

mm. wide, glabrous, linear-oblanceolate, abruptly acute, with a long beak (1.5–2.5 mm.) tipped by a conspicuous stigma, on glabrous pedicels less than half their length (4–9.5 mm.); seeds almost twice as long as wide (2 x 1.2 mm.)—Muddy bank of Mill creek at 8500 ft., elevation, S.W. base of Mt. Elizabeth (6 miles S.E. of the Goodman Ranch), Summit Co., Uinta Mts., UTAH, August 13, 1933. *F. J. Hermann*, no. 5894. TYPE in the Gray Herbarium; isotype in the Herbarium of the University of Michigan.

Mill Creek must frequently rise, when swollen with local rains near its source, and overflow the low, flat, muddy bank on which the Cardamine was found, resulting in a habitat unfavorable to most vascular plants. Only four other species were found associated with it, these being, in the order of their abundance: *Sagina saginoides* (L.) Britton, *Epilobium rubescens* Rydb., *Mimulus Tilingi* Regel, and *Carex nubicola* Mackenzie.

Cardamine uintahensis possesses little affinity with the other entire-leaved Cardaminae of the West, of which *C. cordifolia* Gray is the common representative. In its long-beaked, relatively short and broad siliques, its thick, firm leaves which are so markedly reduced toward the inflorescence, and in its dwarf size it is most closely related to the boreal (chiefly northeastern) *C. Douglassii* (Torr.) Britton. From this it differs in its entirely fibrous rather than tuberiferous rootstock; in its more rigid, distinctly petioled, triangular-ovate upper leaves (not at all oblong or dentate-lobed as, commonly, in *C. Douglassii*); in its much shorter fruiting racemes (in *C. Douglassii* 9–23 cm., very rarely only 5 cm., long); in its shorter styles, its relatively much shorter and broader, abruptly-beaked pods which are at least twice the length of their ascending pedicels (the pedicels often longer than the pods in *C. Douglassii*, rarely, if ever, less than half their length, and at maturity much more divergent); and in its seeds, which are decidedly longer than broad (2 mm. long, 1.2 mm. wide in *C. uintahensis*, but those of *C. Douglassii* almost as broad as long, averaging 1.6 mm. by 1.4 mm.). *C. uintahensis* is very strict, almost rigid, in habit, not lax as is, usually, *C. Douglassii*. Its pods are more abruptly beaked than those of any other entire-leaved species.

The only western Cardamine which shows any relation to *C. uintahensis* is *C. Lyallii* Wats., a species of the Cascades and Sierra Nevadas. Part of the original material of this species was received for study from the Gray Herbarium through the kindness of Mr.

C. A. Weatherby. Like *C. cordifolia* it is a rather rank and lax, thin-leaved plant, with the upper leaves scarcely reduced and long pods (averaging 25 mm.) which are linear, gradually acute and very short-styled; so that *C. Douglassii* is clearly the nearest relative of the Uinta Mountain endemic.

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CAREX DIVISA, TEESDALIA NUDICAULIS AND THLASPI PERFOLIATUM IN MARYLAND

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CAREX DIVISA Huds. On 30 May 1933 I discovered a thriving colony of this sedge, not before found in America, at Plum Point, Calvert County, Maryland. It grew in the sand around the point of a brackish marsh reaching within about 100 feet of the shore of Chesapeake Bay, the colony extending for perhaps a hundred feet on one side of the marsh and half as far on the other. The hurricanes that visited the coast in the fall of 1933 buried much of the colony under several feet of sand, but the full extent of the damage suffered cannot be estimated until another year. This species is recorded by Kükenthal in the "Pflanzenreich" from a wide range in Europe, Asia, northern Africa, South Africa, and New Zealand (introduced near Auckland), growing in grassy, sandy places, especially in the vicinity of the sea.

In our manuals, *Carex divisa* runs down readily to *Carex arenaria* L., another European species of rare occurrence on our coast in Maryland,[1] Virginia, and Oregon. *Carex divisa* agrees with this species in its long running rootstocks, but is readily separated by the whitish, thin, papery, easily lacerated inner side of the leaf sheath (more or less cartilaginous and brownish in *C. arenaria*); by its much shorter inflorescence, with much shorter basal bract; and by its shorter perigynium (3 mm. long), margined rather than winged, and with a much shorter beak. It bears a closer resemblance to *Carex praegracilis* W. Boott, of western North America. My specimens were identified by Prof. M. L. Fernald.

[1] In Mackenzie's treatment (N. Amer. Fl. **18:** 38. 1931) *C. arenaria* is recorded in the United States only from sea beaches near Norfolk and Buckroe, Virginia, and on ballast at Linton, Oregon. In the U. S. National Herbarium are specimens from the following localities not mentioned by Mackenzie: Ballast grounds, Canton, near Baltimore, Maryland, May, 1891, *Basil Sollers;* old sand dunes, forming loose turf under live-oaks, Hampton, Virginia, 13 May 1903, *G. S. Miller, Jr.*